

Welcome to the 2021 STEAM it Up event!

We hope you enjoy the activities and have fun with one another! Each activity offers you a chance to use your **STEAM Habits of Mind**.

STEAM Habits of Mind

Habit of Mind	Ask yourself
Observe	<ul style="list-style-type: none"> Using my five senses, what do I notice? Do I see any patterns in my observations? How can I describe my observations with words, drawings, and/or sound recordings?
Reflect	<ul style="list-style-type: none"> Why? How? What is working? What needs to be improved?
Engage and Persist	<ul style="list-style-type: none"> What is the problem I'm trying to solve? What are some different ways to solve it? What is the phenomenon I'm exploring? What questions do I have? Which of these questions is testable?
Stretch and Explore	<ul style="list-style-type: none"> How can I think about this differently? What can I learn from this failure? How do I test this idea?
Express	<ul style="list-style-type: none"> How do I represent this idea/feeling/design through writing, drawing, modeling, sound, etc.? What materials should I use? What is my process?
Develop Craft	<ul style="list-style-type: none"> What materials and tools do I need? How do these materials and tools work?

ORGANIZED and SPONSORED BY



Cambridge STEAM Initiative is a joint initiative of the City of Cambridge's Department of Human Service Programs, Cambridge Public Library, and Cambridge Public Schools.

STEAM It Up!

Program

So many activities to try and take home! Stretch and Explore. See yourself in STEAM!



STEAM Activities from

ABC Arts Afterschool
 Agenda for Children Literacy Initiative
 Alex makes Art, LLC
 Cambridge Camping
 City of Cambridge Community Development—Public Play Lab
 City of Cambridge Community Development—Transportation Planning
 City of Cambridge, DPW Recycling Division
 Cambridge Energy Alliance
 Cambridge Math Circle
 Cambridge Public Library
 Community Exploration and Learning Lab (CELL @Novartis)
 Charles River Conservancy
 City Sprouts

CPS Educational Technology Department
 CPS Math Department
 Devine Native Plants
 Harvard Museum of Natural History
 Lemelson-MIT Program
 Lesley STEAM Learning Lab
 MathTalk
 MIT Kitchen Matters
 MIT Museum
 MIT Press
 MIT Women + in Chemistry
 Mystic River Watershed Association
 Peabody Community School
 Science Club for Girls
 Tank Design
 Volpe National Transportation Systems Center

Activity Descriptions

ALL AGES ACTIVITIES:

Rainbow Jellyfish (ABC Arts Afterschool) All ages

What makes our markers color? Water soluble markers blend into beautiful rainbow designs when we drop liquid onto them, but what about alcohol-based markers like Sharpies? Create a colorful floating jellyfish with our ink experiment!

Children's Books Give Away (Agenda for Children Literacy Initiative) All ages

Every young person gets a book to bring home!

Abstract Salt Paintings (Alex Makes Art, LLC) All ages

Make a fun and abstract design on canvas, sprinkle salt on top of your glue, and then touch watercolor to the salt glue combination and see the magic that occurs!

STEAM in the Kitchen- What makes our bread so good? (Cambridge Camping) All ages

Light, fluffy bread is just delicious. Come see the power in a tiny packet of yeast, and learn why we need to knead. Leave ready to make your own delicious bread.

Play math with Cambridge Math Circles (Cambridge Math Circle) All ages

Build with snowflakes, investigate the river-crossing problem, origami, and Voronoi diagrams!

Bee Curious: Explore the Hive (Cambridge Public Library) All ages

Cambridge has a free public makerspace at the main library. Learn about this exciting space and workshops! Make your own magnets, use our green screen photobooth, and more!

Pop Up Play Space (City of Cambridge Community Development—Public Play Lab) All Ages

Experience a pop-up play space: build a life sized structure straight out of your imagination! Test out the Cambridge Public Space Lab's "Play Streets in a box" kit of parts, and consider opening a street in your neighborhood for play and community building.

Energy Efficient Bikes Ride-a-thon (City of Cambridge Community Development—Transportation) All ages

Can you name all the parts on a bicycle? Do you know what those parts do? Join us to test your knowledge and win fun, bike-y prizes!

Energy Efficient Bikes (Cambridge Energy Alliance/All in Energy) All Ages

Come and ride an energy efficient bike!

Trash or Treasure (City of Cambridge DPW Recycling Division) All Ages

Sort a mixed bag into trash or treasure (recycling or compost) and see what your recycling can become!

Learn How to Build Your Own Hydroponic Garden (City Sprouts) All Ages

With the help of City Sprouts, learn how to use science and everyday materials to build your own functioning hydroponic growing system. You will be able to grow fresh herbs and flowers all year round in the convenience of your own home!

Code a bot! (CPS—Educational Technology Department) All Ages

Code a Bee-Bot or Sphero Robot with simple commands to go through a maze or to spell your name!

Math and Art Explorations (CPS Math Department) All Ages

Come explore how math and art connect! Make patterns, shapes, and designs, explore with mirrors, and get creative! And don't forget to keep your eyes out for our Sidewalk Math images, questions, and puzzles as you explore tonight.

Catapult Contest: Prototype Testing & Iteration for the Win (Lemelson-MIT Program) All ages

Come build a catapult with simple prototyping materials! Test it! Iterate your design and try again! We will measure how far your catapult sends the object. Prizes for most iterations and farthest distance.

Paper Circuit Greeting Cards (Lesley STEAM Learning Lab) All ages

Light up someone's day by making a COOL electronic LED greeting card. This is a fun, easy way to explore circuits, and most of the materials can be found at your favorite craft store. LED stands for light-emitting diode, which is an electronic device that emits light when an electrical current passes through it.

Activity Descriptions

pHun with Food: Acid-Base Tea Party (MIT Kitchen Matters) All ages

What do acid-base reaction, color-changing lemonade, and cake batter have in common? Come to tea and see!

Exploring Building (Peabody Community Schools) All ages

Explore building towers with index cards tape, paperclips etc. Work together as a group or individually design a tower as high as your supplies and design can withstand.

Gumdrop Towers (Science Club for Girls) All ages

Build a strong tower out of gumdrops and toothpicks. See if your tower can hold a stack of heavy books. What geometric shapes are strongest and help to form a great tower?

Understanding Transportation (Volpe National Transportation Systems Center) All ages

Come learn more about truck safety by experimenting with friction, curve grades, runaway truck ramps, mirrors, and sight distance through a fun experiment!

Activities For Specific Grades/Ages

Explore the Math in Your World (MathTalk) Grade Pre-K-2nd

Enjoy good music while you discover, playfully explore, and talk about the math in your world. We will have fun with games and activities like Creating a Giant Number Line and exploring the AHA! See Math Everywhere app.

Build-a-Bug (Harvard Museum of Natural History) PreK-5th

Come observe and learn from real insects specimens and then try your hand at designing and building your own bug out of craft materials!

Identify native plants with the Charles River Conservancy (Charles River Conservancy) Grades 3rd-8th

Join the Charles River Conservancy and help identify native and invasive plant species. Discover why native plants are important to the Charles River and why invasive plants are not! Make plant observations, record notes, and share findings with an app. Let's explore how we can keep the river's ecosystem healthy.

Why is ROYGBIV Important to Scientific Research (Community Exploration & Learning Lab (CELL @ Novartis)

Grade 3rd-8th

We use light to see, photograph, and communicate. Did you know that light is a measurement tool in scientific research? In this activity, you will use a tool called a spectrophotometer and explore its real world application. You will use the spectrophotometer to measure the amount of light absorbed by a solution to determine its concentration.

The Reason for a Flower...is to Manufacture SEEDs (Devine Native Plants) Grades 3rd-8th

Come get messy and enjoy the fruits of nature! We'll dissect fruits (kiwi, tomato, cauliflower, pumpkin), pods, and flower heads while learning how the seeds inside support pollinators, people, and a healthy planet. After this session, I hope you look at autumn differently; nature's bounty is all around us!

Spooky Circuits (MIT Museum) Grades 3rd-8th

Use copper tape and LED lights to create your own light-up Halloween cards and spooky decorations!

Chemistry in Action (MIT Women+ in Chemistry) Grades 3rd-8th

We will run 1-3 hands-on chemistry demos with household supplies to demonstrate that chemistry is all around us! We'll focus on using the scientific method, and learn to pay attention to science experiments you do in their day-to-day lives. Anyone can be a scientist!

Stormwater Pollution: What is it? (Mystic River Watershed Association) Grades 3rd—8th

When it rains, stormwater washes trash and other pollution into storm drains and then into rivers and brooks. Find out about the kinds of pollution that gets into storm drains. Discover what the City of Cambridge is doing to reduce stormwater pollution. How can you help?

Design Thinking Challenge! (Tank Design) Grades 3rd-8th

The Curie Society Book Give Away (MIT Press) Grades 3rd-8th